

**Department of the Interior  
Bureau of Land Management  
Oklahoma Field Office  
7906 E. 33<sup>rd</sup> Street, Suite 101**

**Project: April 2010 Competitive Oil and Gas Lease Sale**

**EA Log Number: NM- 040-2010-011**

**Location: Grant County, Oklahoma**

**Finding of No Significant Impact  
Decision Record**

**Project: Oil and Gas Lease**

**BLM Office: Oklahoma Field Office (918 621 4100)**

**Finding of No Significant Impact**

The proposed action conforms with and is within the scope of the land use decisions described in the Oklahoma Resource Management Plan (Oklahoma Resource Management Plan Record of Decision and Plan (OKRMP/ROD) approved April 12, 1994. The proposed action was analyzed in the Draft OKRMP and EIS (12/15/1993) and the OKRMP/ROD (4/12/1994). Leasing the subject parcels with protective stipulations will maintain impacts within levels projected and analyzed in those documents. Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined that impacts are not expected to be significant and an environmental impact statement is not required.

**Decision Record**

**Decision:**

It is my decision to recommend that the New Mexico State Office of the Bureau of Land Management (BLM) offer for competitive sale 1 of the 1 parcels of federal minerals originally listed in the Draft Sale Parcel List that were covered by the Oklahoma Resource Management Plans and Records of Decision. The 1 parcel covered by BLM planning documents required the addition of further stipulations and lease notices. A list of the parcels and additional stipulations may be found in Appendix 1 of EA NM-2010-011.

**Rationale:**

The parcels described in Appendix 1, of EA NM-040-2010-011 were reviewed by an interdisciplinary group of specialists at the Oklahoma Field Station. The purpose of the review was to determine if the parcels were in areas open to oil and gas leasing; if leasing was in conformance with the existing RMP; if new information had been developed since the RMP which might affect leasing suitability; to ensure that appropriate lease stipulations were attached to each lease parcel; and to verify that appropriate consultations had been conducted.

The 10.73 acres encompassed by the 1 lease parcels represents approximately .0000003 percent of the approximately 5.3 million acres open to oil and gas leasing and development in Oklahoma.

BLM inventory and monitoring data files and the professional opinion of BLM endangered species specialists is that no federally listed threatened, endangered, or proposed species would be adversely affected by sale of the lease parcels. Effects of oil and gas leasing and development on T/E species were analyzed in the Section 7 consultation conducted for the Oklahoma Resource Management Plans. No new information has been uncovered which would change that analysis. Additional review and analysis would occur when site specific proposals for development are received.

Compliance with Section 106 responsibilities of the National Historic Preservation Act are adhered to by following the BLM Manual 8100, 36CFR Part 800, 43CFR Part 7, and the Cultural Resources Handbook H-8100-1 (For New Mexico, Oklahoma, Kansas, and Texas). When draft parcel locations are received by the Oklahoma Field Office, cultural resource staff reviews the location for any known Cultural Resources on BLM records. Because the area has 57 tribes combined into 44 Tribal Offices, and because complete site files are held only in the State Historic Preservation Officer's office; Tribal Consultations will not be completed until specific locations for proposed projects are received, reviewed by the State SHPO, the BIA and specific Tribes. When particular Tribes respond during consultation, that tribe will be directly involved negotiations with the BLM to determine if the project should be moved, or other mitigation will be required.

Mitigating measures and/or stipulations were considered and analyzed in the environmental assessment. Appropriate lease stipulations and lease notices will be attached to individual parcels as listed in Appendix 1, of EA-2010-011.

### **Administrative Review and Appeal:**

This protest process for this Decision Record has been instituted to reconcile differences between oil and gas lease sale and NEPA regulations; and improve the opportunities for public input into agency decisions. This Decision Record for the Environmental Assessment must be protested under 43 CFR 3120.1-3. Protests must be received within 30 days of the signed decision record. You may file a protest by mail, in hardcopy form or by telefax. You may not file a protest sent to a fax number other than the fax number identified below. Any protests filed by electronic mail will be dismissed. A protest filed by fax must be sent to (505) 438-7458 or by mail to: BLM New Mexico, 1474 Rodeo Road, PO Box 27115, Santa Fe, NM 87502 Attn: Minerals-Protests.

A protest must state the interest of the protesting party in the matter. The protest must also include any statement of reasons to support the protest. We will dismiss a late-filed protest or a protest filed without a statement of reasons.

If the party signing a protest is doing so on behalf of an association, partnership or corporations, the signing party must reveal the relationship between them. Before including your phone number, e-mail address, or other personal identifying information in your protest, you should be aware that your entire protest – including your personal identifying information – may be made publicly available at any time. While you can ask us in your protest to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Approved by: /s/ Rae Swift,  
Assistant Field Manager  
Multi Resources

Date: 4-9-2010

EA-NM-040-010-011

**BUREAU OF LAND MANAGEMENT  
OKLAHOMA FIELD OFFICE**

**ENVIRONMENTAL ASSESSMENT FOR  
April 2010 OIL AND GAS LEASE SALE  
EA-NM-040-2010-011**

**1.0 Introduction**

It is the policy of the Bureau of Land Management (BLM) to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs. The BLM New Mexico State Office conducts a quarterly competitive lease sale to sell available oil and gas lease parcels in New Mexico, Oklahoma, Texas, and Kansas. A Notice of Competitive Lease Sale, which lists lease parcels to be offered at the auction, is published by the BLM State Office at least 45 days before the auction is held. Lease stipulations applicable to each parcel are specified in the Sale Notice. The decision as to which public lands and minerals are open for leasing and what leasing stipulations may be necessary, based on information available at the time, is made during the land use planning process.

In the process of preparing a lease sale the BLM State Office sends a draft parcel list to each field office where the parcels are located. Field Office staff then review the legal descriptions of the parcels to determine if they are in areas open to leasing; if appropriate stipulations have been included; if new information has become available which might change any analysis conducted during the planning process; if appropriate consultations have been conducted, and if there are special resource conditions of which potential bidders should be made aware. Once the draft parcel review is completed and returned to the State Office, a list of available lease parcels and stipulations is made available to the public through a Notice of Competitive Lease Sale (NCLS). Occasionally, additional information obtained after the publication of the NCLS, results in withdrawal of certain parcels or addition of stipulations prior to the day of the lease sale.

The following Environmental Assessment (EA) documents the Oklahoma Field Office review of the three (3) parcels offered in the April 2010 Competitive Oil and Gas Lease Sale that are under the administration of the Oklahoma Field Office. It serves to verify conformance with the approved land use plans and provides the rationale for modifying the lease stipulations as needed to protect resource values based on additional analysis of tracts previously analyzed in the Oklahoma Resource Management Plans (Oklahoma Resource Management Plan Record of Decision and Plan (OKRMP/ROD) approved April 12, 1334.

The three (3) parcels reviewed consist of: one (1) tract administered by the United States Corps of Engineers (USCE), one (1) administered by the United State Fish and Wildlife Service (USFW), and one (1) split-estate parcels in which the Bureau of Land Management is responsible for applying special stipulations if needed are proposed for lease in the April lease sale.

## **1.1 Purpose and Need**

The purpose of offering parcels for competitive oil and gas leasing is to allow private individuals or companies to explore for and develop oil and gas resources for sale on public markets.

The sale of oil and gas leases is needed to meet the growing energy needs of the United States public. Continued leasing is necessary to maintain options for production as oil and gas companies seek new areas for production or attempt to develop previously inaccessible or uneconomical reserves.

## **1.2 Conformance with Applicable Land Use Plan and Other Environmental Assessments**

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this environmental assessment (EA) tiers to and incorporates by reference the information and analysis contained in the Oklahoma Resource Management Plan. The OKRMP OKRMP/ROD (4/12/1334) describes specific split estate tracts in Oklahoma, and the stipulations that would be attached to the tracts if they were to be offered for lease.

Site specific analysis as required by the National Environmental Policy Act (NEPA) of 1963, as amended (Public Law 31-30, 42 USC 4321 et seq.) was conducted by OFO resource specialists who relied on personal knowledge of the areas involved and reviewed existing databases and file information to determine if appropriate stipulations had been attached to specific parcels.

Leasing the proposed tracts with protective stipulations would not be in conflict with any other Federal agency, local, county, or state plans.

## **1.3 Federal, State or Local Permits, Licenses or Other Consultation Requirements**

Purchasers of oil and gas leases are required to obey all applicable federal, state, and local laws and regulations including obtaining all necessary permits required should lease development occur.

Oklahoma Field Office (OFO) endangered species specialists reviewed the proposed action and determined it would be in compliance with threatened and endangered species management and consultation guidelines outlined in the biological assessments (BA) Oklahoma RMP BA dated March 4, 1333. Pursuant to the aforementioned BA and RMP no further consultation with the U.S. Fish and Wildlife Service (FWS) is required at the leasing stage.

Compliance with Section 106 responsibilities of the National Historic Preservation Act

are adhered to by following the BLM Manual 8100, 36CFR Part 800, 43CFR Part 7, and the Cultural Resources Handbook H-8100-1 (For New Mexico, Oklahoma, Kansas, and Texas). When draft parcel locations are received by the Oklahoma Field Office, cultural resource staff reviews the location for any known Cultural Resources on BLM records.

Tribal Consultations will not be completed until specific locations for proposed projects are received, reviewed by the State SHPO, the BIA and specific Tribes. When particular Tribes respond during consultation, that tribe will be directly involved in negotiations with the BLM to determine if the project should be moved, or other mitigation will be required.

## **2.0 Alternatives Including the Proposed Action**

Three (3) lease parcels were originally nominated and proposed for inclusion in the April 2010 Competitive Oil and Gas Lease Sale. One tract is governed by the Corps of Engineers (Tract NM201004- 068) and one is overseen by the United State Fish and Wildlife Service (Tract NM201004- 69). Therefore this EA will deal with 1 privately owned lease tract for which the BLM has jurisdiction.

### **2.1 Alternative A - No Action**

The BLM NEPA Handbook (H-1730-1) states that for Environmental Assessments (EAs) on externally initiated proposed actions, the No Action Alternative generally means the continuation of current management practices and trends.

The No Action alternative would withdraw all the one (1) lease parcels from the April lease sale. The parcels would remain available for inclusion in future lease sales. Surface management would remain the same and ongoing oil and gas development would continue on surrounding federal, private, state, and Indian leases.

If the BLM does not lease these Federal minerals, an assumption is that it is not expected that demand would decrease for oil and gas. Demand would likely be addressed through production elsewhere or imports. Due to less stringent environmental regulations in some areas outside of the U.S., it is possible that there would be increased emissions of volatile organic compounds (VOC), air borne dust, and greenhouse gasses (GHGs) during exploration and production operations. In addition, it is anticipated that there would be additional emissions of GHGs during transportation of these commodities to US ports.

#### **Socio-economics**

It is an assumption that the No Action Alternative (no lease option) may result in a reduction in domestic production of oil and gas. This would likely result in reduced Federal and State royalty income, and the potential for Federal lands to be drained by wells on adjacent private or state lands.

### **2.2 Alternative B - Proposed Action**

## **Description of the Proposed Action**

The Proposed Action would be a recommendation to the State Director that BLM offer for oil and gas leasing 1 parcel of federal minerals covering 40.45 acres administered by the Oklahoma Field Office. Standard terms and conditions as well and special stipulations listed in the RMP would apply. Proposed lease parcel number, size, location, and RMP/ROD page numbers for tract descriptions and stipulations are listed in Appendix 1, Table 1.

Once sold, the lease purchaser has the exclusive right to use as much of the leased lands as is necessary to explore and drill for all of the oil and gas within the lease boundaries, subject to the stipulations attached to the lease (43 CFR 3101).

Oil and gas leases are issued for a 10-year period and continue for as long thereafter as oil or gas is produced in paying quantities. If a lease holder fails to produce oil and gas, does not make annual rental payments, does not comply with the terms and conditions of the lease, or relinquishes the lease, ownership of the minerals leased reverts back to the federal government and the lease can be resold. Four proposed lease tracts have been previously leased.

Drilling of wells on a lease is not permitted until the lease owner or operator meets the site specific requirements specified in 43 CFR 3162.

### **2.3 Alternative - C**

**Alternative C** would be a recommendation to the State Director that BLM offer for oil and gas leasing 1 parcel of federal minerals covering 40.45 acres administered by the Oklahoma Field Office. Standard terms and conditions, special stipulations listed in the OKRMP/ROD, and/or revised special stipulations and lease notices developed to protect resource values found on the tracts since the OKRMP/ROD would apply. The RMP directed that LN-1 be attached to any leases in counties containing suitable habitat for Threatened or Endangered (T/E) species. This lease notice has since been revised and is now called WO-ESA-7. This stipulation gives BLM the authority to modify any proposed actions as a result of the lease to ensure that threatened, endangered, or other special status plants, animals, or their habitats are not adversely affected. Endangered Species Act Section 7 consultation with the FWS would occur if development is proposed for a lease tract containing habitat suitable for T/E species. These new special stipulations (as required by 43 CFR 3131.3) would be added to the 1 parcel to update existing stipulations and/or lease notices and to address site specific concerns or new information not identified in the land use planning process. Changes to the recommended parcel list are presented in Appendix 1, Table 1.

### **2.3 Alternatives Considered But Not Analyzed In Detail**

An alternative of offering all parcels with a no surface occupancy (NSO) stipulation was

not analyzed in detail because those areas for which NSO was considered appropriate were analyzed in the Oklahoma RMP/EIS. Those areas requiring NSO are listed in the lease stipulations attached to individual parcels (see Appendix 1, Table 1).

No other alternatives to the proposed action were apparent which would meet the purpose and need of the proposed action.

### **3.0 Description of Affected Environment**

This section describes the environment that would be affected by implementation of the alternatives described in Section 2. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Certain critical environmental components require analysis under BLM policy. Only those aspects of the affected environment that are potentially impacted are described in detail.

The 1 proposed lease parcels is located in Grant County, Oklahoma. The individual parcels are described in Appendix One of the OKRMP/ROD (the page numbers of those descriptions are listed by proposed lease tract in Appendix 1, table 1 of this EA). Generalized descriptions of the Oklahoma environment are contained in Chapter 3 of the Oklahoma RMP/ROD beginning on page 3-1.

In addition to the air quality information in the RMPs cited above, new information about GHGs and their effects on national and global climate conditions has emerged since the RMPs were prepared. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), water vapor, and several trace gases on global climate. Through complex interactions on a global scale, GHG emissions cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably, and may contribute to overall climatic changes, typically referred to as global warming.

This EA incorporates an analysis of the contributions of the proposed action to GHG emissions and a general discussion of potential impacts to climate.

#### **3.1 Air Resources**

The potential lease tract is all located in a rural area of Oklahoma. Air quality in these areas is generally good. None of the potential lease tracts are located in any of the areas designated by the Environmental Protection Agency as “non-attainment areas” for any listed pollutants regulated by the Clean Air Act.

Air quality and climate are the components of air resources, which include applications, activities, and management of the air resource. Therefore, the BLM must consider and analyze the potential effects of BLM and BLM-authorized activities on air resources as

part of the planning and decision making process.

The Environmental Protection Agency (EPA) has the primary responsibility for regulating air quality, including seven nationally regulated ambient air pollutants. Regulation of air quality is also delegated to some states. Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and also includes applications of noise, smoke management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Greenhouse Gasses and the potential effects of GHG emissions on climate are not regulated by the EPA, however climate has the potential to influence renewable and non-renewable resource management.

### **3.1.1 Air Quality**

Air quality in the areas of the proposed lease tracts is generally good. None of the potential lease tracts are located in any of the areas designated by the Environmental Protection Agency as “non-attainment areas” for any listed pollutants regulated by the Clean Air Act.

Greenhouse gases, including carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), and the potential effects of GHG emissions on climate, are not regulated by the EPA under the Clean Air Act. However, climate has the potential to influence renewable and non-renewable resource management. The EPA’s Inventory of US Greenhouse Gas Emissions and Sinks found that in 2006, total US GHG emissions were over 6 billion metric tons and that total US GHG emissions have increased by 14.1% from 1330 to 2006. The report also noted that GHG emissions fell by 1.5% from 2005 to 2006. This decrease was, in part, attributed to the increased use of natural gas and other alternatives to burning coal in electric power generation.

The levels of these GHGs are expected to continue increasing. The rate of increase is expected to slow as greater awareness of the potential environmental and economic costs associated with increased levels of GHGs result in behavioral and industrial adaptations.

### **3.1.2 Climate**

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1830 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) predicted that by the year 2100, global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1330 levels. The National Academy of Sciences (2006) supports these predictions, but has acknowledged that there are uncertainties regarding how climate



change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

A 2007 US Government Accountability Office (GAO) Report on Climate Change found that, "federal land and water resources are vulnerable to a wide range of effects from climate change, some of which are already occurring. These effects include, among others: 1) physical effects such as droughts, floods, glacial melting, and sea level rise; 2) biological effects, such as increases in insect and disease infestations, shifts in species distribution, and changes in the timing of natural events; and 3) economic and social effects, such as adverse impacts on tourism, infrastructure, fishing, and other resource uses." It is not, however, possible to predict with any certainty regional or site specific effects on climate relative to the proposed lease parcels and subsequent actions.

### **3.2 Areas of Critical Environmental Concern (ACECs)**

The BLM has no designated ACECs in Oklahoma.

### **3.3 Cultural Resources**

Approximately 18,000 archeological sites are recorded in Oklahoma and over 1,000 historic properties in the state are listed on the National Register of Historic Places.

Blanket cultural resource surveys have not been conducted on the proposed lease parcels. Site specific cultural resource surveys and appropriate mitigation measures are required as part of the APD process after parcels are leased.

### **3.4 Native American Religious Concerns**

The process used to deal with Native American Religious Concerns is described on page 8 of the Oklahoma RMP. Consultations with the affected tribes and tribal governments will be completed when a specific project location on a lease is received.

### **3.5 Environmental Justice**

Executive Order 12838 requires federal agencies to assess projects to ensure there is no disproportionately high or adverse environmental, health, or safety effects on minority and low-income populations. Because the BLM is prohibited by law from issuing oil and gas leases within city limits, all of the proposed lease tracts are located in rural, unincorporated areas of Oklahoma.

### **3.6 Farmlands, Prime or Unique**

A review of soils data from the U.S. Department of Agriculture, Natural Resources

Conservation Service for the proposed lease parcels designate none of the lease sale parcels in Oklahoma as Farmland of State-wide importance.

Site specific analysis of any proposed development as a result of these potential leases will document soils and prime or unique farmlands that may occur at the project site.

### **3.7 Floodplains**

Portion of the lease tract is within floodplains:

### **3.8 Invasive, Non-native Species**

Invasive species are well adapted plants and animals that have been introduced into an area where they don't naturally occur. These new environments don't have the natural constraints needed to keep the invader species in check and the invader species can out compete the native plants and damage existing ecosystems. Invasive plants like sericea lespedeza and eastern red cedar severely impact open rangelands and forests, while stream banks and sandy floodplains are being invaded by salt cedar. These three plant species are damaging more wildlife habitat and productive landscapes than any other species.

### **3.3 Threatened or Endangered Species**

OFO endangered species specialists also reviewed the locations of the sale parcels and compared them to the best T/E species information currently available and determined that both of the two split-estate parcels proposed for lease sale contain potential habitat for a listed species. The three BOR and four USACE parcels were reviewed for threatened and endangered species as part of the appropriate agency and Oklahoma's Resource Management Plan. These tracts have been identified in Table 1 (Appendix 1).

Under Section 7 of the Endangered Species Act of 1973 (as amended), the BLM is required to consult with the U.S. Fish and Wildlife Service (FWS) on any proposed action which may affect federally listed threatened or endangered species or species proposed for listing. A detailed listing of threatened and endangered species within Oklahoma may be found on pages 3-11 to 3-13 of the OKDRMP/EIS.

### **3.10 Wastes, Hazardous or Solid**

The Resource Conservation and Recovery Act (RCRA) of 1976 established a comprehensive program for managing hazardous wastes from the time they are produced until their disposal. U.S. Environmental Protection Agency (EPA) regulations define solid wastes as any "discarded materials" subject to a number of exclusions. On April 6, 1980, EPA determined that oil and gas exploration, development and production wastes would not be regulated as hazardous wastes under RCRA. The Comprehensive Environmental Response Compensation and Liability Act (CERCLA) of 1980, deals with the release (spillage, leaking, dumping, accumulation, etc.), or threat of a release of hazardous substances into the environment. Despite many oil and gas constituent wastes

being exempt from hazardous waste regulations, certain RCRA exempt contaminants could be subject to regulations as hazardous substances under CERCLA.

No hazardous or solid waste materials are known to be present on the proposed lease parcels.

### **3.11 Water Quality – Surface/Ground**

Information on water quality conditions in Oklahoma can be found on pages 3-5 through 3-7 of the OKRMP/ROD.

### **3.12 Wetlands /Riparian Zones**

All of the proposed lease tracts (refer to Table 2 in Appendix 1) contain, or potentially contain, wetlands and/or riparian zones. Additional information on, and discussion of, wetlands and riparian zones appears on pages 3-8 through 3-10 and 4-6 of the OKRMP/ROD.

### **3.13 Wild and Scenic Rivers**

No Wild and Scenic Rivers occur in Oklahoma where the proposed lease tracts are located.

### **3.14 Wilderness**

No wilderness areas or proposed wilderness areas occur in any of the Oklahoma where the proposed lease tracts are located.

### **3.15 Mineral Resources**

Oil and gas development began in Oklahoma more than 100 years ago and virtually all of the area with high potential for oil and gas production is under prior existing leases held by production. Four (4) of the 12 lease parcels evaluated in this EA have been leased previously.

Mineral resources of the OFO are described on pages 3-16-3-21 of the OKRMP/ROD.

### **3.16 Paleontology**

All Cultural Resource Surveys for projects in the Oklahoma Field Office area of responsibility are required to include statements on any new paleontological material discovered during inventory. These reports are reviewed and new fossil material is reported to paleontologists. Protection and preservation of significant fossil materials in specific locations will be required in any BLM permitted projects.

### **3.17 Soils**

The State's varied climate and topography have combined to produce broad differences in state soils. In the eastern part of the states soils have been developed where leaching is intense and conditions are humid. Western soils developed in an area of lesser rainfall. Further discussion of soil resources in Oklahoma may be found on pages 3-8 in the OKRMP/ROD.

### **3.18 Watershed -Hydrology**

Proposed Oklahoma lease tracts fall within 3 river basins: the Canadian, Cimarron, and the Poteau.

Information on watershed-hydrology units can be found on pages 3-13 to 3-24 of the OKRMP/ROD.

### **3.13 Vegetation**

Proposed lease tracts are located in 1 Oklahoma county. Pages 3-8 thru-3-11 of the OKRMP/ROD provide further details on vegetation resources in the leasing area.

### **3.20 Livestock Grazing**

Most areas of rural Oklahoma are used for livestock grazing on at least a seasonal basis. Oklahoma contains only a few small scattered parcels of public surface and only four small grazing leases administered by the BLM. None of these are on the lease sale.

### **3.21 Special Status Species**

In accordance with BLM Manual 6840, BLM manages certain sensitive species not federally listed as threatened or endangered. Included in this category are state listed endangered species and federal candidate species which receive no special protections under the Endangered Species Act. Special status species (SSS) which occur in Oklahoma are listed on pages 3-11 through 3-13 of the PRMP/FEIS.

### **3.22 Wildlife**

Counties in Oklahoma where the proposed lease tracts occur contain diverse wildlife populations as well as habitats. Generally speaking the eastern one-third of Oklahoma receives ample rainfall and supports the much of the oak, pine and hickory forests. The bulk of the central portion of Oklahoma is within the cross timbers area where the transition begins from eastern deciduous forests to the more arid portions of western Oklahoma. The faunal diversity follows this same transition from cypress swamps and alligators in the southeast tip of the state to piñon-juniper and mule deer in the furthest western portion of the Oklahoma panhandle. Regional information on wildlife and their habitats in Oklahoma is contained on pages 3-8 to 3-10 of the OKRMP/ROD.

### **3.23 Wild horses and Burros**

No wild and free roaming horses or burros occur in Oklahoma.

### **3.24 Recreation**

Oklahoma has a variety of outdoor recreational resources. The one (1) tract for lease is privately owned, and offers no public recreation and hunting opportunities.

### **3.25 Visual Resources**

Visual Resource Management (VRM) on public lands is conducted in accordance with BLM Handbook 8410 and BLM Manual 8411. In Oklahoma the BLM has jurisdiction over only a few small scattered surface tracts and has not designated any VRM management classes. Oil and gas exploration and production facilities are a prominent feature of the visual landscape in the counties containing the proposed lease tracts.

### **3.26 Public Health and Safety**

The area containing the lease parcels has been under oil and gas development for many years. Leasing of the parcels analyzed in this EA would present no new or unusual health or safety issues not covered by existing state and federal laws and regulations.

## **4.0 Environmental Consequences and Proposed Mitigation Measures**

### **No Action Alternative**

Under the No Action Alternative, the proposed parcels would not be leased. There would be no new impacts from oil and gas production on the parcel lands. Oil and gas development of federal, state, private, and Indian minerals would continue on the lands surrounding the parcels. No additional natural gas would enter the public markets and no royalties would accrue to the federal or state treasuries. The No Action Alternative would result in the continuation of the current land and resource uses on the parcels.

### **Alternatives B and C**

The act of leasing parcels would, by itself, have no impact on any resources in the OFO. The environmental consequences of oil and gas leasing in Oklahoma are analyzed in the OKRMP/ROD (pages 4-1 to 4-23). That analysis, which assumes that the impacts from an average well, pipeline and access road would total 4.25 acres of surface disturbance in Oklahoma is incorporated by reference into this document. All impacts would be tied to as yet undetermined future levels of lease development.

Short-term impacts are those which can be stabilized or mitigated rapidly (within 5

years). Long-term impacts are those that would substantially remain for more than 5 years.

## **4.1 Air Quality**

### **4.1.1 Direct and Indirect Effects**

Leasing the subject tracts would have no direct impacts to air quality. Any potential effects to air quality from sale of lease parcels would occur at such time that the leases were developed. Over the last 10 years, the leasing of Federal oil and gas mineral estate in OK has resulted in an average of 20 wells drilled on federal leases annually. These wells would contribute a small percentage of the total emissions (including GHG's) from oil and gas activities in the state.

Potential impacts of development could include increased air borne soil particles blown from new well pads or roads, exhaust emissions from drilling equipment, compressors, vehicles, and dehydration and separation facilities, as well as potential releases of GHG and volatile organic compounds during drilling or potential leaks. The amount of increased emissions cannot be quantified at this time since it is unknown how many wells might be drilled, the types of equipment needed in the case a well were to be completed successfully (compressor, separator, dehydrator, etc.), or what technologies may be employed by the companies drilling any new wells. The degree of impact will also vary according to the characteristics of the geologic formations from which production occurs.

The reasonable and foreseeable development scenario developed for the EIS's of the OKRMP/ROD assumed 20 wells would be drilled annually in each state on federal lands. Current APD permitting trends within the field office confirm that these assumptions are still accurate. This level of exploration and production would contribute a small incremental increase in overall hydrocarbon emissions, including GHG's, released into the planet's atmosphere. When compared to total national or global emissions the amount released as a result of potential production from the proposed lease tracts would not have a measurable effect on climate change due to uncertainty and incomplete and unavailable information.

Consumption of oil and gas developed from the proposed lease parcels is expected to produce GHGs. Consumption is driven by a variety of complex interacting factors including energy costs, energy efficiency, availability of other energy sources, economics, demography, and weather or climate. If the BLM were to forego its leasing decisions and potential development of those minerals, the public's demand for the resource would not be expected to change, instead the resource foregone would be replaced by other sources that may include a combination of imports, fuel switching, and other domestic production. This displacement of supply would offset any reductions in emissions achieved by not leasing the subject tracts.

The assessment of greenhouse gas emissions and climate change is in its formative phase; therefore, it is not yet possible to know with confidence the net impacts to climate of

global emissions. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts of decisions made at this level. The Department of the Interior is exploring whether global and regional climate modeling can be scaled to the point that it can be used to manage parks and refuges (GAO-07-863, 2007). When further information on the impacts to climate change is known, such information would be incorporated into our planning and NEPA documents as appropriate.

#### **4.1.2 Potential Mitigation**

The EPA's inventory data breaks down the total US sources of GHG gases by major categories that include "Natural Gas Systems" and "Petroleum Systems". The EPA's inventory lists the contributions of natural gas and petroleum systems to total CO<sub>2</sub> and CH<sub>4</sub> emissions (natural gas and petroleum systems do not produce significant amounts of any of the other greenhouse gases). For Natural Gas Systems, the EPA categorizes emissions from distinct stages of the larger category of natural gas systems. These stages include field production, processing, transmission and storage, and distribution. Of these stages, the BLM has regulatory jurisdiction only over field production. For Petroleum Systems, these sub-activities include production field operations, crude oil transportation, and crude oil refining. Within the petroleum systems emission categories the BLM has authority to regulate production field operations.

The BLM's regulatory jurisdiction over field production of Natural Gas Systems and production field operations of Petroleum Systems has resulted in the development of "Best Management Practices" designed to reduce impacts to air quality by reducing all emissions from field production and operations. Any development which may result from leasing the subject parcels could be made subject to appropriate conditions of approval addressing greenhouse gas emissions that BLM may develop through future NEPA analysis at either the plan or development project level designed specifically to reduce or otherwise mitigate potential GHG emissions. Specific measures developed at the project stage could be incorporated as "Conditions of Approval" in the approved APD and are binding on the operator. Typical measures may include: Flare hydrocarbon and gases at high temperatures in order to reduce emissions of incomplete combustion. Water dirt roads during periods of high use in order to reduce fugitive dust emissions. Require that vapor recovery systems be maintained and functional in areas where petroleum liquids are stored. Vegetation of areas of the pad not required for production facilities to reduce the amount of dust from the pads.

The EPA data shows that improved practices and technology, and changing economics have reduced emissions from oil and gas exploration and development. One of the factors in this improvement is the adoption, by industry of the Best Management Practices proposed by the EPA's Natural Gas Energy Star program. The OFO will work with industry to facilitate the use of the relevant BMP's for operations proposed on federal mineral leases where such mitigation is consistent with agency policy.

## **4.2 Areas of Critical Environmental Concern**

Not present

## **4.3 Cultural Resources**

### **4.3.1 Direct and Indirect Effects-**

Direct and indirect effects cannot be predicted without analysis of site specific development proposals. These proposals would occur at the APD stage of development. Potential impacts at that stage could include increased human activity and possibility of removal of, or damage to, heritage artifacts. The increase in human activity in the area increases the possibility of irretrievable loss of information pertaining to the heritage of the project region. Conversely, the benefits to heritage resources derived from the future development are the heritage and historic survey that adds to literature, information, and knowledge of cultural resources.

### **4.3.2 Potential Mitigation**

Specific mitigation measures, including, but not limited to, possible site avoidance or excavation and data recording would have to be determined when site specific development proposals are received.

## **4.4 Native American Religious Concerns**

### **4.4.1 Direct and Indirect Effects**

No direct effects will result from leasing. If development is proposed for any of the lease tracts Tribal consultation will be initiated for the area potentially impacted by the proposed action.

### **4.4.2 Potential Mitigation**

Tribal religious or ceremonial resources in a specific location will be reviewed at the time of a specific project proposal, due to the 30 day requirement for Tribal consultations, and the Tribe's resistance to revealing religious or ceremonial locations.

## **4.5 Environmental Justice**

### **4.5.1 Direct and Indirect Effects**

Leasing the proposed tracts would have no direct effects on minority or low income populations.

All proposed lease tracts are located in rural areas with low population densities (less than 50 people per square mile). No minority or low income populations would be



disproportionately affected in the vicinity of the proposed action. Indirect effects could include effects due to overall employment opportunities related to the oil and gas and service support industry in the region as well as the economic benefits to state and county governments related to royalty payments and severance taxes. Other effects could include a small increase in activity and noise disturbance in areas used for grazing, agriculture, hunting and other activities.

#### **4.5.2 Potential Mitigation**

Surface owners are compensated for surface damages and/or the loss of productivity of surface resources for the duration of the disturbance. Reclamation measures undertaken when the well is plugged and abandoned require the surface to be returned to its approximate original contour and vegetation so as to support pre-project land uses. In some cases the landowner requests that roads or other developments be left “as is” for other uses.

### **4.6 Farmlands, Prime or Unique**

#### **4.6.1 Direct and Indirect Effects**

No direct effects from leasing. Oil and gas exploration which may result from leasing the tracts could result in an alteration of soil characteristics at the project area. These impacts would include localized compaction, alteration of soil horizons, and degradation of topsoil quality.

#### **4.6.2 Potential Mitigation**

If development results from leasing the subject tracts, site specific analysis of soil properties at the project location would identify any prime or unique farmlands which may occur. Roads would be designed to avoid areas where possible and to reduce any project footprint in this special category of farmland.

### **4.7 Floodplains**

#### **4.7.1 Direct and Indirect Effects**

A portion of the 1 lease parcel is within a floodplain. Leasing the proposed parcels will result in no direct impacts to floodplains. Potential indirect results may occur if wells incorporating these Federal minerals are drilled as a result of this lease.

#### **4.7.2 Potential Mitigation**

Protective stipulation ORA-1 would be attached to any lease of a tract which falls within a floodplain. ORA-1 states that, “All or portions of the lands under this lease lie in and or adjacent to a major watercourse and are subject to periodic flooding. Surface occupancy of these areas will not be allowed without the specific approval, in writing, of the Bureau

of Land Management.” Specific mitigation measures for any development which may result from leasing the subject tracts would be deferred until the locations of potential proposed actions are known.

#### **4.8 Invasive, Non-native Species**

##### **4.8 .1 Direct and Indirect Effects**

Any surface disturbance can increase the possibility of establishment of new populations of invasive non-native species. The likelihood of this happening cannot be predicted with existing information. At the APD stage, BLM requirements for use of weed control strategies would minimize the potential for spread of these species.

##### **4.8 .2 Potential Mitigation**

Identification of invasive species is deferred to site specific development at APD stage. Best management practices require that all actions on public lands that involve surface disturbance or rehabilitation, reasonable steps are required to prevent the introduction or spread of noxious weeds, including requirements for using weed seed-free hay, mulch and straw.

#### **4.3 Threatened or Endangered Species**

##### **4. 3.1 Direct and Indirect Effects**

Leasing the tracts will have no direct impacts to Threatened or Endangered Species. If the lease results in development, approximately 4.25 acres of existing vegetation would be removed by drill pad, pipeline, and access road construction. There would be a long-term change in plant and animal species composition and altered utilization of the site and surrounding area by wildlife. Site specific biological resource surveys would be required at the project stage and, depending on location and nature of the proposed development and the results of surveys, additional Section 7 consultation could be required.

##### **4.3.2 Potential Mitigation**

The RMP directed that LN-1 be attached to any leases in counties containing suitable habitat for Threatened or Endangered (T/E) species. This lease notice has since been revised and is now called WO-ESA-7. This stipulation gives BLM the authority to modify any proposed actions as a result of the lease to ensure that threatened, endangered, or other special status plants, animals, or their habitats are not adversely affected. Endangered Species Act Section 7 consultation with the FWS would occur if development is proposed for a lease tract containing habitat suitable for T/E species. If any surface disturbing actions are proposed as a result of this proposed lease a biological evaluation shall be conducted and site specific mitigating measures will be developed.

The ORA-3 stipulation used in the Oklahoma has been replaced by ORA-5 in order to

provide additional protection and conservation measures for the lesser (and greater) prairie-chicken (LPC/GPC). Not only has the stipulation used for LPC/GPC concerns changed but the information available regarding the current occupied range of the species has changed. The RMPs directed that ORA-3 be attached to any leases in counties containing populations of LPC/GPC. ORA-3 was basically a timing restriction stipulation while ORA-5 contains measures other than a timing restriction.

The two split-estate parcels carry WO-ESA-7, BLM's T/E species stipulation. The 4 USACE tracts and the 3 BOR tracts will also carry stipulations designed by those agencies to protect T&E species.

These protective stipulations provide the authority to modify any proposed projects that might result from leasing the subject tracts

#### **4.10 Wastes, Hazardous or Solid**

##### **4.10.1 Direct and Indirect Effects**

Leasing the subject tracts would have no direct effect. The proposed lease could result in a project that has the potential for either short or long-term impacts to all resources to some manner or degree, by pollution from un-managed hazardous and non-hazardous waste streams.

##### **4.10.2 Potential Mitigation**

None required at the lease stage. If development results site specific measures are developed and attached to the permit to drill. Special conditions typically include:

- (1) All identified fresh water zones will be isolated by using casing and cementing procedures (USGS base of treatable fresh water isopach maps).
- (2) All wastes from all waste streams on site must be removed to an approved disposal site. No land disposal of any wastes on site will be permitted.

#### **4.11 Water Quality: Surface and Groundwater**

##### **4.11.1 Direct and Indirect Effects**

Leasing would have no affect on water quality issues. If development results, potential effects would depend on site specific location of future development and cannot be predicted or quantified at the leasing stage. General conditions of approval at the APD stage include reclamation of plant communities and use of culverts and silt traps to stabilize and reduce sediment flow. Existing regulations require operators ensure an adequate casing program is designed to protect ground water from contamination.

##### **4.11.2 Potential Mitigation**

Water quality issues are deferred to the site specific APD stage of development. Best management practices would be incorporated into Conditions of Approval. Some of these

measures including casing design, erosion control, and revegetation are discussed in items 4.5.2, 4.7.2, and 4.10.2 above.

## **4.12 Wetlands/Riparian Zones**

### **4.12.1 Direct and Indirect Effects**

Two potential lease tracts contain wetlands or potential wetlands. Leasing the proposed tracts will result in no direct impacts to wetlands. Potential indirect results may occur if wells incorporating these Federal minerals are drilled as a result of this lease.

### **4.12.2 Potential Mitigation**

Protective stipulation ORA-2 would be attached to any lease of a tract containing wetlands and or riparian zones. ORA-2 states that, “All or portions of the lands under this lease contain wetlands and or riparian zones. Surface occupancy of these areas will not be allowed without the specific approval, in writing, of the Bureau of Land Management. Impacts or disturbance to wetlands and riparian habitats which occur on this lease must be avoided or mitigated. The mitigation shall be developed during the application to drill process.” Specific mitigation measures for any development which may result from leasing the subject tracts would be deferred until the locations of potential proposed actions are known.

The Oklahoma tracts managed by the BOR or USACE are covered by the BOR or USACE’s NSO stipulations, respectively.

## **4.13 Wild and Scenic Rivers**

None present

## **4.14 Wilderness**

None present

## **4.15 Mineral Resources**

### **4.15.1 Direct and Indirect Effects**

If the proposed leases result in wells those wells have the potential to affect production horizons and reservoir pressures. If the wells are producers the resources allotted to these wells will eventually be depleted. The amount and location of direct and indirect effects cannot be predicted until the site specific APD stage of development. None of the lease parcels appear to present any conflict with the development of other mineral resources such as coal or sand and gravel.

### **4.15.2 Potential Mitigation**

Mineral resource evaluation is deferred to the site specific APD stage of development. Spacing orders and allowable production orders are designed to conserve the oil and/or gas resource and provide maximum recovery.

## **4.16 Paleontology**

### **4.16.1 Direct and Indirect Effects**

Direct and indirect effects cannot be predicted without analysis of site specific development proposals. These proposals would occur at the APD stage of development. Potential impacts at that stage could include increased human activity and possibility of removal of, or damage to, paleontology resources. The increase in human activity in the area increases the possibility of irretrievable loss of information pertaining to the paleontology of the project region. Conversely, a benefit to paleontology resources could occur if potential future development results in a paleontology survey that adds to literature, information, and knowledge of paleontology resources.

### **4.16.2 Potential Mitigation**

Specific mitigation measures, including, but not limited to, possible site avoidance or excavation and data recording would have to be determined when site specific development proposals are received.

## **4.17 Soils**

### **4.17.1 Direct and Indirect Effects**

Leasing would not directly affect soils. If oil and/or gas development is proposed on any of the proposed leases, site construction (pad, pipeline and road) will remove vegetation and compact approximately 4.25 acres of soil at each well site in Oklahoma. This will increase the potential for wind and sheet erosion and could decrease the permeability of compacted areas.

### **4.17.2 Potential Mitigation**

The soil analysis deferred to the site specific APD stage of development. Best management practices would be incorporated into Conditions of Approval. Typical conditions include: Six inches of top soil from the proposed location shall be stock piled and be available for reshaping during the restoration process. No cut and/or fill will take place outside of the staked surveyed area. Stockpiled soil shall be protected from wind and water erosion through prompt establishment and maintenance of effective, quick growing vegetative cover.

## **4.18 Watershed - Hydrology**

### **4.18.1 Direct and Indirect Effects**

As with soils, the amount and location of direct and indirect effects cannot be predicted until the site specific APD stage of development. If wells are drilled as a result of the proposed leases, site construction (pad, pipeline and road) will remove vegetation and compact approximately 4.25 acres in Oklahoma. This will increase the potential for sheet erosion and could decrease the permeability of compacted areas.

### **4.18.2 Potential Mitigation**

Best Management Practices would be incorporated into Special Conditions of Approval attached to a permit to drill. These typically include: Six inches of top soil from the proposed location shall be stock piled and be available for reshaping during the restoration process. No cut and/or fill shall take place outside of the staked surveyed area. Stockpiled soil shall be protected from wind and water erosion through prompt establishment and maintenance of an effective, quick growing vegetative cover.

## **4.13 Vegetation, Forestry**

### **4.13.1 Direct and Indirect Effects**

Leasing would have no direct affect on vegetation or forestry. If oil and/or gas development occurs as a result of leasing, site clearing would remove vegetation from approximately 4.25 acres used as drill pad, access road and pipeline construction for each well drilled.

### **4.13.2 Potential Mitigation**

If potential wells are productive disturbed areas not needed for the production facility will be reclaimed resulting in approximately 2 acres impacted for the life of each well. In the case of non-productive wells all disturbed areas shall be reseeded and vegetative cover reestablished. Vegetation would be established on all areas of the location to be reclaimed. This phase of the reclamation process should be accomplished by using seed or sod. Current policy recommends that these areas be restored with native vegetation in regards to both species and structure. This recommended reclamation is contingent upon the wishes of the surface owner.

## **4.20 Livestock Grazing**

### **4.20.1 Direct and Indirect Effects**

The amount and location of direct and indirect effects cannot be predicted until the site specific APD stage of development.

### **4.20.2 Potential Mitigation**

The impacts of livestock grazing will be deferred to the site specific APD stage of development. BLM currently consults with grazing permittees on a site-by-site basis as part of the APD approval process. Best management practices would be incorporated into Conditions of Approval.

#### **4.21 Special Status Species**

##### **4.21.1 Direct and Indirect Effects**

No direct or indirect effects are expected based on existing information. Further site specific inventories would be conducted, if necessary, at the project (APD) stage to determine if additional analysis would be required.

##### **4.21.2 Potential Mitigation**

Deferred to the site specific APD stage of development.

#### **4.22 Wildlife**

##### **4.22.1 Direct and Indirect Effects**

Leasing the tracts will have no direct impacts to wildlife. If the lease results in development, approximately 4.25 acres in Oklahoma of existing vegetation would be removed by drill pad, pipeline, and access road construction. The proposed action would result in long-term change in plant and animal species composition and altered utilization of the site and surrounding area by wildlife.

##### **4.22.2 Potential Mitigation**

Wildlife impacts are deferred to the site specific APD stage of development.

#### **4.23 Wild Horse and Burros**

None present.

#### **4.24 Recreation**

##### **4.24.1 Direct and Indirect Effects**

Potential effects could occur on private lands but these effects cannot be determined until site specific development proposals are received at the APD stage.

#### **4.24.2 Potential Mitigation**

Recreation impacts are generally deferred to site specific requirements determined at the APD stage.

#### **4.25 Visual Resources**

##### **4.25.1 Direct and Indirect Effects**

Potential effects cannot be determined until site specific development proposals are received at the APD stage. It is probable that any development which may result from these proposed leases would occur in areas where oil and gas exploration and production facilities are common features of the visual landscape.

##### **4.25.2 Potential Mitigation**

Appropriate BMP's shall be applied to any development which may occur as a result of offering these parcels of federal minerals for lease. BMP's could include such things as painting facilities to blend with surroundings and using topography and/or vegetation to screen projects.

#### **4.26 Public Health and Safety**

##### **4.26.1 Direct and Indirect Effects**

Specific potential effects cannot be determined until site specific development proposals are received at the APD stage. Based on the history of oil and gas development in Oklahoma, overall effects of leasing less than one percent of the lands open to oil and gas development should result in negligible direct and indirect effects.

##### **4.26.2 Potential Mitigation**

This is deferred to the APD stage when site specific requirements can be determined.

#### **4.27 Cumulative Effects**

Analysis of cumulative impacts for reasonably foreseeable development of oil and gas wells on public lands Oklahoma was presented in the OKRMP/EIS (pages 4-1 to 4-5). Potential development of all available federal minerals in Oklahoma including those in the proposed lease parcels was included as part of the analysis. Total surface disturbance projected by the plans was based on an estimated 20 federal wells being drilled annually in Oklahoma. The estimated 20 federal wells in Oklahoma were projected to disturb approximately 85 acres. Over the last 10 years there have been no changes to the basic assumptions or projections described in the OKRMP/EIS analysis.

More than 100 years of oil and gas development in Oklahoma have resulted in an



extensive infrastructure of existing roads and pipelines. The extent of this development is illustrated by the following statistics. Oklahoma Corporation records show that 432,868 wells have been drilled in Oklahoma from 1304 to 2006. Impacts from this development will remain on the landscape until final abandonment and reclamation of facilities occurs as wells are plugged when they are no longer economically viable.

The absence of a regulatory requirement to measure GHG emissions and the variability of oil and gas activities on federal minerals in Oklahoma prevent accurate quantification of GHG emissions that might occur as a result of making the proposed tracts available for leasing. We can however make some generalizations: leasing the proposed tracts may contribute to ongoing drilling of an average of 20 wells a year on federal leases in the states of Oklahoma.. A total of 2427 wells were drilled in Oklahoma in 2006. This total, when compared to the estimates used for the cumulative analysis previously referenced, shows that wells drilled on federal leases wells may be expected to produce approx. 0.002 % of the GHG emissions produced from wells drilled in Oklahoma. The amount of GHG emissions are small, incremental contributions to the total emissions from the 3 state area, and are also insignificant when compared to global GHG emission levels. These small incremental contributions to global GHG gases cannot be translated into incremental effects on climate change globally or in the area of this site-specific action (see 1508.27a). The total amount of GHG emissions from oil and gas activities is expected to continue decreasing as improved technology and changing economics result in more complete control of GHG emissions at all stages of oil and natural gas systems.

The lack of scientific tools designed to predict climate change on regional or local scales limits the ability to quantify potential future impacts. However, potential impacts to air quality due to climate change are likely to be varied. For example, if global climate change results in a warmer and drier climate, increased particulate matter impacts could occur due to increased windblown dust from drier and less stable soils. Cool season plant species' spatial ranges are predicted to move north and to higher elevations, and extinction of endemic threatened/endangered plants may be accelerated. Due to loss of habitat, or due to competition from other species whose ranges may shift northward, the population of some animal species may be reduced. Less snow at lower elevations would be likely to impact the timing and quantity of snowmelt, which, in turn, could impact water resources and species dependant on historic water conditions.

## 5.0 Consultation/Coordination

This section includes individual resource specialists located within the Oklahoma Field office that were contacted during the development of this document.

**Table 5.1 Summary of Contacts Made During Preparation of Document and Interdisciplinary Team**

<b>ID Team Member</b>	<b>Title</b>	<b>Organization</b>
Holly Smith	Archaeologist	BLM
Larry Levesque	Wildlife Biologist	BLM
Jackie Badley	Environmental Protection	BLM
Pat Stong	Geologist	BLM
Lisa Fretz	Realty Specialist	BLM

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## **7. Authorities**

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